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=> fil reg
FILE 'REGISTRY' ENTERED AT 08:51:37 ON 28 OCT 2008
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

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STRUCTURE FILE UPDATES:  27 OCT 2008  HIGHEST RN 1067095-09-3
DICTIONARY FILE UPDATES: 27 OCT 2008  HIGHEST RN 1067095-09-3
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New CAS Information Use Policies, enter HELP USAGETERMS for details.

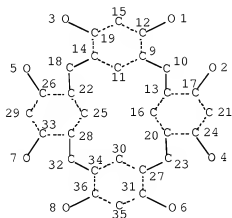
TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

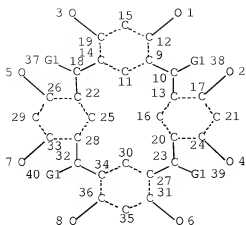
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=> d sta que l35
L22          STR
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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 NUMBER OF NODES IS 36

STEREO ATTRIBUTES: NONE
 L24 3936 SEA FILE=REGISTRY SSS FUL L22
 L25 STR



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VAR G1=AK/ID
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CONNECT IS M1 RC AT 3
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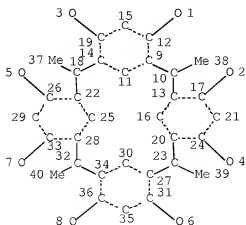
GRAPH ATTRIBUTES:
RSPEC 12
NUMBER OF NODES IS 40

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STEREO ATTRIBUTES: NONE
L27 1523 SEA FILE=REGISTRY SUB=L24 CSS FUL L25
L33 STR

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CONNECT IS M1 RC AT 4
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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC 12
NUMBER OF NODES IS 40

STEREO ATTRIBUTES: NONE

L35 512 SEA FILE=REGISTRY SUB=L27 SSS FUL L33

100.0% PROCESSED 1522 ITERATIONS 512 ANSWERS
SEARCH TIME: 00.00.01

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FILE 'HCAPLUS' ENTERED AT 08:51:58 ON 28 OCT 2008
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FILE COVERS 1907 - 28 Oct 2008 VOL 149 ISS 18
FILE LAST UPDATED: 27 Oct 2008 (20081027/ED)

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2008.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> => d bib abs hitind hitstr retable tot

L98 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN
AN 2007:913940 HCAPLUS Full-text
DN 149:267724
TI Synthesis of a reactive calixarene and a poly(calixarene)
AU Jeerupan, Jarunee; Nemoto, Tadamasa; Shin, Dong-mi; Nakamoto, Yoshiaki;
Konishi, Gen-ichi
CS Division of Material Sciences, Graduate School of Natural Science &

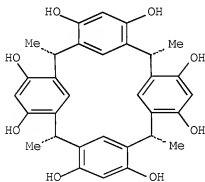
Technology, Kanazawa University, Kanazawa, Ishikawa, 920-1192, Japan
 SO ITE Letters on Batteries, New Technologies & Medicine (2007), 8(3),
 283-287
 CODEN: ILBMF9; ISSN: 1531-2046
 PB ITE Inc.
 DT Journal
 LA English
 AB The preparation of a reactive calixarene and a polycalixarene is described.
 The Williamson ether synthesis of calix[4]resorcinarene with p-xylylene
 dibromide afforded calix[4]resorcinarene per(4-bromomethylphenylmethyl) ether
 (I) and polycalixarene (II) having calixarene as a cavity and a
 bromomethylphenyl group as a reactive site. The structures of I and II were
 supported by their ¹H NMR, FT-IR spectra, MALDI-TOF-Mass, GPC, and elemental
 analyses. These functional materials have considerable potentials as a
 reactive polymer, an adhesive, and a building block for nano materials.
 CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 IT 1047670-42-7P 1047670-43-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of a reactive calixarene and a poly(calixarene))
 IT 1047670-43-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of a reactive calixarene and a poly(calixarene))
 RN 1047670-43-8 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
 4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, stereoisomer, polymer
 with 1,4-bis(bromomethyl)benzene (CA INDEX NAME)

CM 1

CRN 74708-10-4

CMF C32 H32 O8

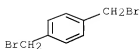
Relative stereochemistry.



CM 2

CRN 623-24-5

CMF C8 H8 Br2



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Aoyama, Y	1988	110	1634	J Am Chem Soc	HCAPLUS
Bohmer, V	1995	34	1713	Angew Chem Int Ed	
Konishi, G	2004	125	1154	J Network Polym Jpn	HCAPLUS
Kudo, H	2006	38	1289	Polym J	HCAPLUS
Nishikubo, T	2003	135	1213	Polym J	HCAPLUS
Takeshi, K	1998		1865	Chem Lett	HCAPLUS

L98 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1065512 HCAPLUS [Full-text](#)

DN 145:407598

TI Positive resists for electron beam, x-ray, and extreme UV, and their patterning method

IN Sasaki, Tomoya

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 47pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
PI JP 2006276742	A	20061012	JP 2005-99202	20050330
PRAI JP 2005-99202		20050330		
OS MARPAT 145:407598				

AB The resists contain (T) nonpolymeric compds. bearing ≥ 2 acid-labile groups increasing solubility to alkali developers upon acid action, and (B) compds. generating acids upon actinic light beam or radiation, wherein the contents of T and B to solid components is ≥ 40 weight% and ≥ 5 weight%, resp. Preferable structures of the compds. (T) are also given. The resists show good sensitivity in vacuum, and do not cause line pattern width changes upon post-exposure baking.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos resist acid labile nonpolymeric additive; electron beam pos resist acid labile nonpolymeric additive; extreme UV pos resist acid labile nonpolymeric additive; x ray pos resist acid labile nonpolymeric additive

IT Photolithography

Positive photoresists

(extreme UV; pos. resist containing acid-labile compound and photoacid generator for electron beam, x-ray, and extreme UV)

IT Electron beam lithography

Electron beam resists

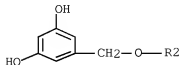
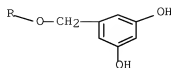
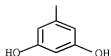
X-ray lithography

X-ray resists

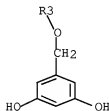
(pos. resist containing acid-labile compound and photoacid generator for electron beam, x-ray, and extreme UV)

IT 56530-39-3 197447-16-8 284474-28-8 389859-76-1 874747-64-5
910917-92-9

PAGE 2-A



PAGE 3-A

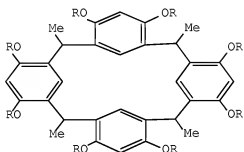


L98 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN
 AN 2005:1123873 HCAPLUS [Full-text](#)
 DN 143:413494
 TI Calixresorcinarene compounds, photoresist base materials, and compositions thereof
 IN Ishii, Hirotoshi; Owada, Takanori; Shibasaki, Yuzi; Ueda, Mitsuru
 PA Idemitsu Kosan Co., Ltd., Japan
 SO PCT Int. Appl., 52 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005097725	A1	20051020	WO 2005-JP6512	20050401 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,				

EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, MD,
 MR, NE, SN, TD, TG

EP 1734032	A1	20061220	EP 2005-728046	20050401 <--
R: BE, DE, FR, GB				
CN 1938259	A	20070328	CN 2005-80010812	20050401 <--
US 20070190451	A1	20070816	US 2006-594282	20060926 <--
KR 2007003980	A	20070105	KR 2006-720033	20060927 <--
PRAI JP 2004-111459	A	20040405	<--	
JP 2004-111460	A	20040405	<--	
WO 2005-JP6512	W	20050401	<--	
OS MARPAT 143:413494				
GI				



I

AB Disclosed are calixresorcinarene comps. (I: wherein R = h, 1-tetrahydropyranyl, 1-tetrahydrofuranyl, organic moiety having 2-methyl-2-adamantylloxycarbonylmethyl groups, etc.), use of I as resist base material, and resist comps. containing I. The comps. are useful for nanofabrication with extreme UV rays or electron beam.

IC ICM C07C0067-31
 ICS C07C0069-712; G03F0007-039; H01L0021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 23

ST calixresorcinarene deriv radiation resist nanofabrication

IT Photoresists
 (UV; calixresorcinarene derivs. for resist base materials for nano-fabrication)

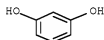
IT Electron beam resists
 (calixresorcinarene derivs. for resist base materials for nano-fabrication)

IT Lithography
 (submicron; radiation resist composition containing calixresorcinarene derivs. for)

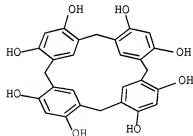
IT 280-57-9, 1,4-Diazabicyclo[2.2.2]octane 66003-78-9
 RL: TEM (Technical or engineered material use); USES (Uses)
 (radiation resist composition containing calixresorcinarene derivs. and)

IT 108-46-3, Resorcinol, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with acetaldehyde in synthesis of calixresorcinarene derivs. for radiation resist)

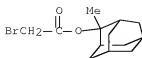
- IT 75-07-0, Acetaldehyde, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with resorcinol in synthesis of calixresorcinarene derivs.
 for radiation resist)
- IT 5292-43-3DP, tert-Butyl bromoacetate, reaction product with
 calixresorcinarene 125748-07-4DP, reaction products
 with bromoacetic acid esters 625122-37-4DP, reaction
 product with calixresorcinarene
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (synthesis and use as radiation resists for nano-fabrication)
- IT 125748-07-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (synthesis and use for radiation resist base materials)
- IT 308-46-3, Resorcinol, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with acetaldehyde in synthesis of
 calixresorcinarene derivs. for radiation resist)
- RN 108-46-3 HCAPLUS
- CN 1,3-Benzenediol (CA INDEX NAME)



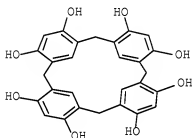
- IT 125748-07-4DP, reaction products with bromoacetic acid
 esters 625122-37-4DP, reaction product with
 calixresorcinarene
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (synthesis and use as radiation resists for nano-fabrication)
- RN 125748-07-4 HCAPLUS
- CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
 4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



- RN 625122-37-4 HCAPLUS
- CN Acetic acid, 2-bromo-, 2-methyltricyclo[3.3.1.13,7]dec-2-yl ester (CA
 INDEX NAME)



IT 125748-07-4P
 RL: PCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (synthesis and use for radiation resist base materials)
 RN 125748-07-4 HCAPLUS
 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
 4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



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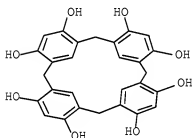
Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Idemitsu Kosan Co Ltd	2005			JP 200575767 A	
Jsr Corp	1998			JP 10-310545 A	HCAPLUS
Nakayama, T	1998	71	2979	Bulletin of the Chem	HCAPLUS
Ueda, M	2004			WO 2004036315 A1	HCAPLUS

L98 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN
 AN 2005:672152 HCAPLUS [Full-text](#)
 DN 143:164712
 TI Method for high-resolution pattern formation
 IN Sakamizu, Toshio
 PA Hitachi Ltd., Japan; Hitachi High Technologies Corporation
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005202176	A	20050728	JP 2004-8756	20040116 <--
JP 2004-8756		20040116	<--	

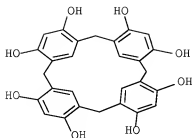
AB The process consists of coating substrates with compns. containing polymers or compds. having perfluoroalkyl acetals as acid-labile groups, and acid generators, pattern-wise irradiation for latent pattern formation, and development of the latent patterns with supercrit. fluids. The process gives fine patterns with good dry etching resistance useful as neg. photoresists for semiconductor integrated circuits, MOS transistors, etc.

- IC ICM G03F0007-038
ICS G03F0007-32; H01L0021-027
- CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 74
- ST pattern formation semiconductor integrated circuit MOS transistor;
perfluoroalkyl acetal resist supercrit carbon dioxide
development; perfluorooctyl vinyl ether hydroxystyrene styrene polymer
acetal
- IT Integrated circuits
MOS transistors
Negative photoresists
Supercritical fluids
(method for high-resolution pattern formation by development with
supercrit. CO2)
- IT 125748-07-4DP, Calix[4]resorcinarene, reaction products
with 1H,1H,2H,2H-perfluorooctyl vinyl ether
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(calix[4]resorcinarene; method for high-resolution pattern formation by
development with supercrit. CO2)
- IT 125748-07-4DP, Calix[4]resorcinarene, reaction products
with 1H,1H,2H,2H-perfluorooctyl vinyl ether
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(calix[4]resorcinarene; method for high-resolution pattern formation by
development with supercrit. CO2)
- RN 125748-07-4 HCAPLUS
- CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



- L98 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN
- AN 2005:592384 HCAPLUS [Full-text](#)
- DN 144:477616
- TI Resist materials for advanced lithography
- AU Fedynyshyn, Theodore H.; Sinta, Roger F.; Pottebaum, Indira; Cabral, Alberto
- CS Lincoln Lab., Massachusetts Inst. Technol., Lexington, MA, 02420, USA
- SO Proceedings of SPIE-The International Society for Optical Engineering (2005), 5753(Pt. 1, Advances in Resist Technology and Processing XXII), 281-291
CODEN: PSISDG; ISSN: 0277-786X
- PB SPIE-The International Society for Optical Engineering
- DT Journal
- LA English

- AB Increasing the understanding of the fundamental resist material characteristics is a necessary preamble to the development of resists with improved resolution and line edge roughness. Material characteristics will not only influence resist sensitivity and resolution, but also may influence the critical dimension control of the lithog. process through its effects on line edge roughness (LER). Polymers with controlled mol. wts. and polydispersities as well as several non-polymeric resist materials were prepared and studied. This entailed preparing novel derivs. of these non-polymeric materials that were compatible with photoimaging as pos. acid catalyzed resists. Examples are presented where non-polymeric resist materials were isolated into single well-defined components that could be compared to mixts. of similar composition. Results are presented on materials properties such as surface roughness and resist resolution. Included in the results are examples of non-polymeric materials that are capable of sub 100-nm resolution as pos. resists.
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST resist photoresist photolithog lithog crit dimension
calixarene line edge
- IT Measurement
(CD; Resist materials for advanced lithog.)
- IT Lithography
Resists
(Resist materials for advanced lithog.)
- IT Phenolic resins, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Resist materials for advanced lithog.)
- IT Metacyclophanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(calixarenes; Resist materials for advanced lithog.)
- IT 59269-51-1, Polyhydroxystyrene 125748-07-4,
Calix[4]resorcinarene 275364-54-0, TPPA 1000P
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Resist materials for advanced lithog.)
- IT 7440-21-3, Silicon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(wafer; Resist materials for advanced lithog.)
- IT 125748-07-4, Calix[4]resorcinarene
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Resist materials for advanced lithog.)
- RN 125748-07-4 HCAPLUS
- CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosane-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Fedynyshyn, T	1999	3873	600	Proc SPIE	HCAPLUS
Fedynyshyn, T	2003	15039	310	Proc SPIE	HCAPLUS
Fujita, J	1996	14	4272	J Vac Sci Technol B	HCAPLUS
He, D	1999	17	3379	J Vac Sci Technol B	HCAPLUS
Iimori, H	2003	16	1685	J Photopolym Sci Tech	HCAPLUS
Lin, Q	2000	3999	1230	Proc SPIE	HCAPLUS
McKean, D	1992	1672	194	Proc SPIE	HCAPLUS
Nakayama, T	1997	1	1265	Chem Lett	HCAPLUS
Namatsu, H	1998	16	3315	J Vac Sci Technol B	HCAPLUS
Reynolds, G	1999	17	334	J Vac Sci Technol B	HCAPLUS
Sekiguchi, A	2000	39	1392	Jpn J Appl Phys	HCAPLUS
Wamne, N	1992	67	1451	Proc Am Chem Soc, PM	HCAPLUS
Weinelt, F	1991	56	5527	J Org Chem	HCAPLUS
White, D	1998	3333	132	Proc SPIE	HCAPLUS
Yamaguchi, T	1997	171	12388	Appl Phys Lett	HCAPLUS
Yoshimura, T	1993	123	16065	Jpn J Appl Phys	
Young-Gill, K	2002	112	153	J Mater Chem	

L98 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:355223 HCAPLUS [Full-text](#)

DN 140:383102

TI Photoresist base material, method for purification thereof, and photoresist compositions containing the same

IN Ueda, Mitsuru; Ishii, Hirotoshi

PA Idemitsu Kosan Co., Ltd., Japan

SO PCT Int. Appl., 56 pp.

CODEN: PIXXD2

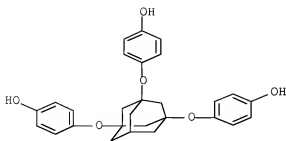
DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004036315	A1	20040429	WO 2003-JP11137	20030901 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

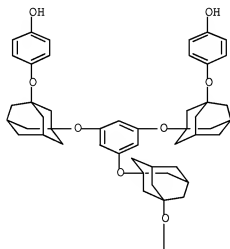
JP 2004191913 A 20040708 JP 2003-112458 20030417 <--
 AU 2003261865 A1 20040504 AU 2003-261865 20030901 <--
 EP 1553451 A1 20050713 EP 2003-808872 20030901 <--
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
 CN 1688939 A 20051026 CN 2003-824240 20030901 <--
 TW 282037 B 20070601 TW 2003-92124659 20030905 <--
 US 20050271971 A1 20051208 US 2005-531208 20050414 <--
 PRAI JP 2002-300144 A 20021015 <--
 JP 2003-112458 A 20030417 <--
 WO 2003-JP11137 W 20030901 <--
 OS MARPAT 140:383102
 AB The invention relates to photoresist base materials consisting of extreme UV sensitive-organic compds. represented by the general formula (B-X)l(C-Y)m(D-Z)nA: [wherein A is a central structure consisting of an aliphatic group having C1-50, an aromatic group having C6-50 carbon, an organic group bearing both, or an organic group having a cyclic structure formed by repetition of these groups; B to D are each an extreme UV sensitive group, a group exhibiting a reactivity on the action of a chromophore sensitive to extreme UV rays, a C1-50 aliphatic or C6-50 aromatic group having such a group, an organic group having both groups, or a substituent having a branched structure; X to Z are each a single bond or an ether linkage; l to n are integers of 0-5 satisfying the relationship: l + m + n <u></u> 1; and A to D may each have a heteroatom-bearing substituent]. The invention provides photoresist base materials and photoresist compns. which enable ultrafine lithog. with extreme UV rays or the like and is suitable for use in semiconductor device fabrication.
 IC ICM G03F0007-039
 CCS ICS C07C0039-17; C07C0069-736; C07D0309-04
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 76
 ST photoresist compn
 IT Light-sensitive materials
 Photoresists
 Recrystallization
 Semiconductor device fabrication
 (photoresist base material, method for purification thereof, and photoresist compns. containing the same)
 IT Distillation
 (vacuum; photoresist base material, method for purification thereof, and photoresist compns. containing the same)
 IT 65338-98-9DP, tetrahydropyranyl and benzyl derivative ethers
 125748-97-4F, Calix[4]resorcinarene 211427-64-4P
 683227-72-7F 683227-73-8P 683227-74-9P
 683227-75-0P 683227-76-1P
 RL: PUR (Purification or recovery); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (photoresist base material, method for purification thereof, and photoresist compns. containing the same)
 IT 75-07-0, Acetaldehyde, reactions 198-46-3, Resorcinol, reactions 110-87-2, Dihydro-2H-pyran 623-05-2, 4-Hydroxybenzyl alcohol 1927-95-3, 4-Bromophenyl acetate 5001-18-3, 1,3-Dihydroxyadamantane 5292-43-3, tert-Butyl bromoacetate 24424-99-5, Di-tert-butyl dicarbonate 27955-94-8, 29654-55-5, 3,5-Dihydroxybenzylalcohol 99181-50-7, 1,3,5-Trihydroxyadamantane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (photoresist base material, method for purification thereof, and photoresist compns. containing the same)



RN 683227-73-8 HCAPLUS

CN Phenol, 4,4',4''-[1,3,5-benzenetriyltris(oxytricyclo[3.3.1.1.3,7]decane-3,1-diylloxy)]tris- (9CI) (CA INDEX NAME)

PAGE 1-A



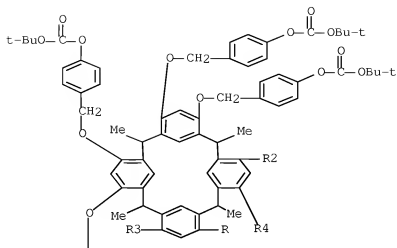
PAGE 2-A



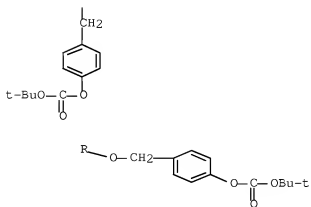
RN 683227-74-9 HCAPLUS

CN Carbonic acid, (2,8,14,20-tetramethylpentacyclo[19.3.1.1.3,7,19,13,11,5,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethyl-4,1-phenylene)octakis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

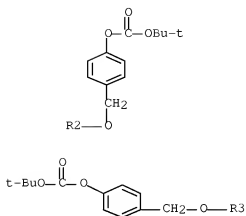
PAGE 1-A



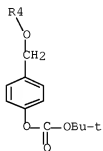
PAGE 2-A



PAGE 3-A

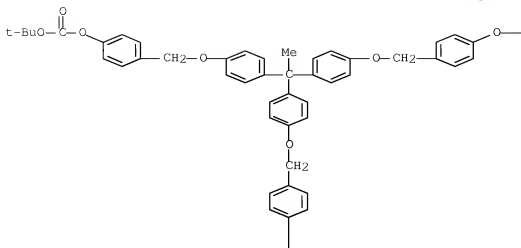


PAGE 4-A



RN 683227-75-0 HCAPLUS
 CN Carbonic acid, ethylidynetris(4,1-phenyleneoxymethylene-4,1-phenylene)
 tris(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



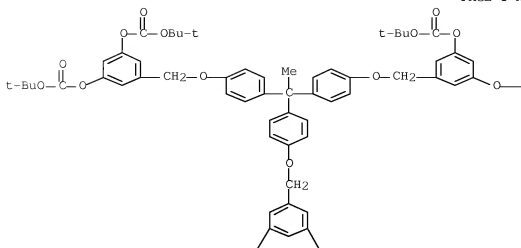
PAGE 2-A



RN 683227-76-1 HCAPLUS

CN Carbonic acid, ethylidynetris(4,1-phenyleneoxymethylene-5,1,3-benzenetriyl) hexakis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



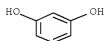
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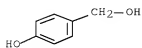
PAGE 2-A



IT 108-46-3, Resorcinol, reactions 623-05-2,
 4-Hydroxybenzyl alcohol 5001-18-3, 1,3-Dihydroxyadamantane
 27955-94-8 29654-55-5, 3,5-Dihydroxybenzylalcohol
 99181-50-7, 1,3,5-Trihydroxyadamantane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (photoresist base material, method for purification thereof, and
 photoresist compns. containing the same)
 RN 108-46-3 HCAPLUS
 CN 1,3-Benzenediol (CA INDEX NAME)



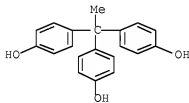
RN 623-05-2 HCAPLUS
 CN Benzenemethanol, 4-hydroxy- (CA INDEX NAME)



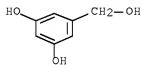
RN 5001-18-3 HCAPLUS
 CN Tricyclo[3.3.1.1.3,7]decane-1,3-diol (CA INDEX NAME)



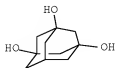
RN 27955-94-8 HCAPLUS
 CN Phenol, 4,4',4''-ethylidynetris- (CA INDEX NAME)



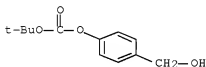
RN 29654-55-5 HCAPLUS
 CN 1,3-Benzenediol, 5-(hydroxymethyl)- (CA INDEX NAME)



RN 99181-50-7 HCAPLUS
 CN Tricyclo[3.3.1.1.3,7]decane-1,3,5-triol (CA INDEX NAME)



IT 156281-11-7P, 4-(tert-Butoxycarbonyloxy)benzylalcohol
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (photoresist base material, method for purification thereof, and
 photoresist comps. containing the same)
 RN 156281-11-7 HCAPLUS
 CN Carbonic acid, 1,1-dimethylethyl 4-(hydroxymethyl)phenyl ester (CA INDEX
 NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Fuji Photo Film Co Ltd	1994			JP 06-51519 A	HCAPLUS
Fuji Photo Film Co Ltd	2002			JP 2002182392 A	HCAPLUS
Fuji Photo Film Co Ltd	2002			JP 2002229193 A	HCAPLUS
Fuji Photo Film Co Ltd	2003			JP 2003177537 A	HCAPLUS
Jsr Corp	2001			JP 2001109142 A	HCAPLUS
Jsr Corp	2003			JP 2003137860 A	HCAPLUS
Kri International Inc	2002			WO 02079131 A1	HCAPLUS
Kri International Inc	2002			JP 2002363123 A	HCAPLUS
Matsushita Electric Ind	1999			JP 11-72922 A	HCAPLUS
Matsushita Electric Ind	1999			US 6074804 A	HCAPLUS
Matsushita Electric Ind	1999			EP 889367 A	HCAPLUS
Tokyo Ohka Kogyo Co Ltd	2002			US 20020025495 A1	HCAPLUS
Tokyo Ohka Kogyo Co Ltd	2002			JP 200255452 A	

L98 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2000:181970 HCAPLUS [Full-text](#)

DN 132:300541

TI Synthesis and characterization of calix[4]resorcinarene bearing azobenzene moieties as novel photofunctional materials

AU Sakai, Yoshimasa; Fukuda, Takashi; Ueda, Mitsuru; Matsuda, Hiro

CS Department of Polymer Chemistry, Tokyo Institute of Technology, Tokyo, 152-8552, Japan

SO Polymeric Materials Science and Engineering (2000), 82, 87-88

CODEN: PMSEGD; ISSN: 0743-0515

PB American Chemical Society

DT Journal

LA English

AB A calix[4]resorcinarene bearing azobenzene moieties (Azo-CX4) was prepared via the etherification reaction of the calix[4]resorcinarene with 4-[4-(6-bromohexyloxy)phenylazo]nitrobenzene. The product was characterized by 1H-NMR and MALDI-TOF-MS anal. Amorphous thin films of Azo-CX4 were deposited on glass substrates by spin coating. The films had no absorption in the 2nd-harmonic-resonance region and showed SHG activity without electrofield poling.

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25

IT 100-01-6, 4-Nitroaniline, reactions 108-95-2, Phenol,

reactions 629-03-8, 1,6-Dibromohexane 125748-07-4

RL: RCT (Reactant); PACT (Reactant or reagent)

(preparation of calix[4]resorcinarene bearing azobenzene moieties as novel photofunctional materials)

IT 108-95-2, Phenol, reactions 125748-07-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of calix[4]resorcinarene bearing azobenzene moieties as novel photofunctional materials)

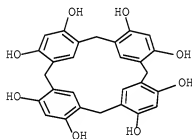
RN 108-95-2 HCAPLUS

CN Phenol (CA INDEX NAME)



RN 125748-07-4 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosapent(25), 3,5,7(28), 9,11,13(27), 15,17,19(26), 21,23-dodecaene-4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Gutsche, C	1983	16	161	Acc Chem Res	HCAPLUS
Hogberg, A	1980	145	1498	J Org Chem	
Ishikawa, W	1997		265	Chem Lett	
Nakanishi, H	1991		141	Photofunctional Mater	
Verbiest, T	1995	268	1604	Science	HCAPLUS
Xie, S	1993	15	1403	Chem Mater	HCAPLUS

L98 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1999:44198 HCAPLUS [Full-text](#)

DN 130:202814

TI A New Photoresist Based on Calix[4]resorcinarene Dendrimer

AU Haba, Osamu; Haga, Kohji; Ueda, Mitsuru; Morikawa, Osamu; Konishi, Hisatoshi

CS Department of Human Sensing and Functional Sensor Engineering Graduate School of Engineering, Yamagata University, Yamagata, 992-8510, Japan

SO Chemistry of Materials (1999), 11(2), 427-432

CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

AB A new dendrimer (1), which contains phenol groups in the exterior for solubilization in aqueous alkaline solution and calix[4]resorcinarene in the interior to increase the mol. weight and number of the phenol group even in the lower generation, was designed as new neg.-working, alkaline-developable photoresist material. A neg.-working photoresist based on 1, 2,6-bis(hydroxymethyl)phenol as crosslinker, and diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate as a photoacid generator was developed. This resist gave a clear neg. pattern through postbaking at 110° after exposure to UV light, followed by developing with a 0.3% aqueous Me4NOH solution at room temperature

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST lithog photoresist calixresorcinarene dendrimer

IT Negative photoresists
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

IT Dendritic polymers
RL: TEM (Technical or engineered material use); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

IT 2937-59-9, 2,6-Bis(hydroxymethyl)phenol
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinker; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

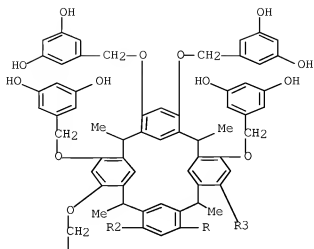
IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

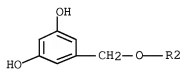
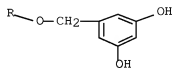
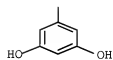
RN 196298-30-3 HCAPLUS

CN 1,3-Benzenediol, 5,5',5'',5''',5''''',5''''',5''''',5''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxyethylene)]octakis- (9CI) (CA INDEX NAME)

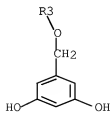
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Referenced Author (RAU)	Year VOL PG (RPY) (RVL) (RPG)	Referenced Work (RWK)	Referenced File
Allen, R	1995 2438 250	Proc SPIE	HCAPLUS
Hawker, C	1990 112 7638	J Am Chem Soc	HCAPLUS
Hawker, C	1990 1010	J Chem Soc Chem Comm	HCAPLUS
Hogberg, A	1980 145 4498	J Org Chem	
Konig, K	1979 101 3553	J Am Chem Soc	
Lee, S	1994 27 5154	Macromolecules	HCAPLUS
Lee, S	1994 27 5160	Macromolecules	HCAPLUS
Naito, K	1991 1869	Chem Lett	
Naito, K	1992 3 117	Polym Adv Technol	
Nakayama, T	1997 265	Chem Lett	HCAPLUS
Tsuji, J	1979 613	Tetrahedron Lett	HCAPLUS
Ueda, M	1998 10 2230	Chem Mater	HCAPLUS
Ueda, M	1996 29 6427	Macromolecules	HCAPLUS
Willson, C	1994 2nd ed 139	Introduction to Micro	

L98 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1998:781642 HCAPLUS Full-text

DN 130:146122

TI A New Three-Component Photoresist Based on Calix[4]resorcinarene Derivative, a Crosslinker, and a Photoacid Generator

AU Nakayama, Tomonari; Nomura, Masayoshi; Haga, Kohji; Ueda, Mitsuru

CS Dep. Human Sensing and Functional Sensor Eng., Graduate School of Eng., Yamagata University, Yonezawa, Yamagata, 992-8510, Japan

SO Bulletin of the Chemical Society of Japan (1998), 71(12), 2979-2984
CODEN: BCSJAS; ISSN: 0009-2673

PB Chemical Society of Japan

DT Journal

LA English

AB Calix[4]resorcinarene [2,8,14,20-tetramethylcalix[4]arene-4,6,10,12,16,18,22,24-octol; C4-RA] (4) having p-hydroxybenzyl groups on its exterior was prepared by the condensation of C4-RA and p-(allyloxy)benzyl bromide, followed by the cleavage of allyl groups with palladium catalyst and ammonium formate. Compound 4 having high transparency to UV-light above 300 nm was considered for a new resist matrix. A three-component photoresist consisting of 4, 2,6-bis(hydroxymethyl)-4-methylphenol (BHMP), and diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) showed a sensitivity of 19 mJ cm⁻² (D1/2) and a contrast of 3.0 (γ1/2) when it was exposed to 365 nm light and post-exposure baked (PEB) at 110 °C for 5 min, followed by developing with a 0.2 wt% aqueous tetramethylammonium hydroxide (TMAH) solution. A fine neg. image featuring 1 μm of min. line and space patterns was observed on film of the photoresist exposed to 40 mJ-cm⁻² of UV-light at 365 nm with a scanning electron microscope.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photoresist calixresorcinarene deriv crosslinker photoacid generator; lithog photoresist calixresorcinarene deriv

IT UV and visible spectra
(absorption; of calix[4]resorcinarene derivative for photoresist formulation)

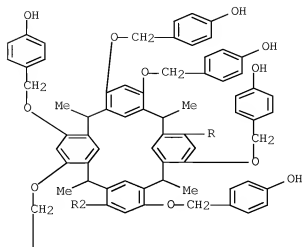
IT Photoresists
(lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

IT Thermal properties
(of calix[4]resorcinarene derivative for photoresist formulation)

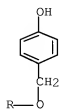
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)

- (developer; lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)
- IT 17455-13-9, 18-Crown-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in synthesis of calix[4]resorcinarene derivative for photoresist formulation)
- IT 3256-45-9P, p-(Allyloxy)benzyl alcohol 143116-30-7P, p-(Allyloxy)benzyl bromide 220033-50-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in synthesis of calix[4]resorcinarene derivative for photoresist formulation)
- IT 220033-49-8P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)
- IT 91-04-3, 2,6-Bis(hydroxymethyl)-4-methylphenol 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)
- IT 74708-10-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with allyloxybenzyl bromide and 18-crown-6 in synthesis of calix[4]resorcinarene derivative for photoresist formulation)
- IT 220033-49-8P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)
- RN 220033-49-8 HCAPLUS
- CN Phenol, 4,4',4'',4''',4''''',4''''''',4''''''''',4'''''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13.7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxyethylene)]octakis- (9CI) (CA INDEX NAME)

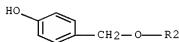
PAGE 1-A



PAGE 2-A



PAGE 3-A



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Allen, R	1995	2438	250	Proc SPIE	HCAPLUS
Fujita, J	1995	168	2438	Appl Phys Lett	
Gutsche, C	1993	VIII	75	Org Synth Coll	
Gutsche, C	1993	VIII	77	Org Synth Coll	
Hanabatake, M	1989	46	115	Kobunshi Ronbunshu	
Hanabatake, M	1989	46	745	Kobunshi Ronbunshu	

Hogberg, A	1980	102	16046	J Am Chem Soc	
Hogberg, A	1980	145	14498	J Org Chem	
Ishikawa, W	1991		11731	J Chem Lett	HCAPLUS
Konig, K	1979	101	13553	J Am Chem Soc	
Lee, S	1994	127	15154	Macromolecules	HCAPLUS
Munch, J	1993	VIII	180	J Org Synth Coll	
Naito, K	1991		1869	J Chem Lett	
Nakayama, T	1997		1265	J Chem Lett	HCAPLUS
Shaw, J	1997	141	181	IBM J Res Develop	HCAPLUS
Tsiartas, P	1997	130	14656	Macromolecules	HCAPLUS
Tunstad, L	1989	154	1305	J Org Chem	HCAPLUS
Ueda, M				J Chem Mater in press	
Wallraf, G	1992	136	1468	Imaging Sci Technol	
Willson, C	1994		1139	"Introduction to Mic	

L98 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1998:758628 HCAPLUS [Full-text](#)

DN 130:73852

TI Phenolic dendrimer and radiation-sensitive composition containing it for resist

IN Ueda, Mitsuru

PA JSR Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 25 pp.

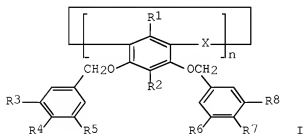
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10310545	A	19981124	JP 1997-136066	19970509
PRAI	JP 1997-136066		19970509		
OS	MARPAT 130:73852				
GI					



AB Title composition contains phenolic dendrimer I (R1-R8 = H, OH, halo, alkyl, aryl, aralkyl, alkoxy, alkenyl, alkenyloxy, acyl, alkoxy carbonyl, alkyloxyloxy, aryloxyloxy, cyano, NO₂; ≥1 of R3-R8 = OH; X = single bond, CR₉R₁₀; R₉, R₁₀ = H, alkyl, aryl; n = 3-8). The composition is useful as resist showing high sensitivity and resolution

IC ICM C07C0043-23

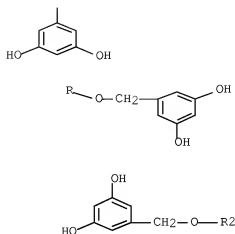
ICS G03F0007-022; G03F0007-038; H01L0021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

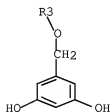
Section cross-reference(s): 25

ST phenolic dendrimer radiation sensitive resist

PAGE 2-A



PAGE 3-A



L98 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1998:592926 HCAPLUS [Full-text](#)

DN 129:283338

OREF 129:57637a,57640a

TI Calixarene and dendrimer as novel photoresist materials

AU Haba, Osamu; Takahashi, Daisuke; Haga, Kohji; Sakai, Yoshimasa; Nakayama, Tomonari; Geda, Mitsuru

CS Department of Human Sensing and Functional Sensor Engineering, Graduate School of Engineering, Yamagata University, Yamagata, 992, Japan

SO ACS Symposium Series (1998), 706(Micro- and Nanopatterning Polymers), 237-248

CODEN: ACSMC8; ISSN: 0097-6156

PB American Chemical Society

DT Journal

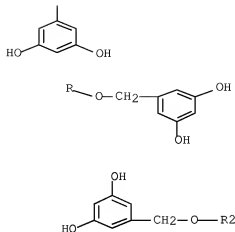
LA English

AB Neg.-working alkaline developable photoresists based on calix[4]-resorcinarene (1) or calixarene dendrimer (2), a crosslinker, and a photoacid generator have been developed. Compound 2 was prepared by the condensation of compound 1 with 3,5-diallyloxybenzylbromide, followed by the removal of allyl groups. The resist consisting of 1 (70 wt%), a photoacid generator, diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) (10 wt%), and 4,4'-methylenebis[2,6-bis(hydroxymethyl)-phenol] (MBHP) (20 wt%) as a crosslinker

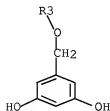
showed a sensitivity of 2.2 mJ-cm⁻² and a contrast of 3.1 when it was exposed to 365 nm light and postbaked at 130°C for 3 min, followed by developing with a 0.1% aqueous tetramethylammonium hydroxide (TMAH) solution. On the other hand, the resist formulated by mixing 2 (70 wt%), DIAS (10 wt%), and the crosslinker, 2,6-bis(hydroxymethyl)phenol (BHP) produced a clear neg. pattern by the exposure of 365 nm (10 mJ-cm⁻²) UV light, postbaked at 110°C for 3 min, and developed with a 0.3% TMAH aqueous solution.

- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST photorealist calixarene dendrimer crosslinker photoacid generator
- IT Crosslinking
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)
- IT Dendritic polymers
Oligomers
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)
- IT 2937-59-9, 2,6-Bis(hydroxymethyl)phenol 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl)-phenol]
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinker; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)
- IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)
- IT 13965-03-2, Bis(triphenylphosphine)palladium dichloride
RL: CAT (Catalyst use); USES (Uses)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)
- IT 196298-31-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)
- IT 135710-38-2P 177837-80-8P 182058-69-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)
- IT 65338-98-9, Calix[4]resorcinarene
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)
- IT 136298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)
- IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing

PAGE 2-A



PAGE 3-A



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Allen, R	1995	2438	1250	Proc SPIE	HCAPLUS
Crivello, J	1978			UV Curing:Science an	
Fujita, J	1995	68	12438	Appl Phys Lett	
Gutsche, C	1992	28	13	Aldrichimica Acta	
Hawker, C	1990	112	17638	J Am Chem Soc	HCAPLUS
Hogberg, A	1980	145	14498	J Org Chem	
Lee, S	1994	27	15154	Macromolecules	HCAPLUS
Lee, S	1994	27	15160	Macromolecules	HCAPLUS
Nitoh, K	1991		1869	Chem Lett	
Nitoh, K	1992	13	1117	Polym Adv Technol	
Wallraf, G	1992	136	1468	J Imaging Sci Technol	
Willson, C	1994		1139	Introduction to Micr	

L98 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1998:475830 HCAPLUS [Full-text](#)

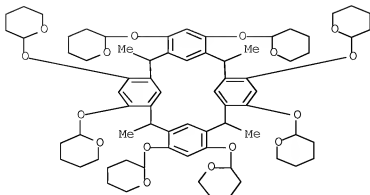
DN 129:181991

OREF 129:36845a,36848a

TI Structural design of resin matrix and acid-labile dissolution inhibitor of chemical amplification positive electron-beam resist for gigabit lithography

AU Sakamizu, Toshio; Arai, Tadas; Katoh, Kohji; Uchino, Shou-ichi; Murai,

- Fumio; Suzuki, Yasunori; Shiraishi, Hiroshi
 CS Cent. Res. Lab., Hitachi, Ltd., Kokubunji, Tokyo, 185-8601, Japan
 SO Journal of Photopolymer Science and Technology (1998), 11(4), 547-552
 CODEN: JSTEED; ISSN: 0914-9244
- PB Technical Association of Photopolymers, Japan
 DT Journal
 LA English
 AB The effect of m/p-cresol novolak mol.-weight-distribution (MWD) and dissoln. inhibitor structure on resist performance were investigated. A novolak resin richer in p-cresol ratio gave a large dissoln. inhibition capability of polymeric dissoln. inhibitor, tetrahydropyranyl (THP) protected-polymeric dissoln. inhibitor. In particular, a high mol.-weight novolak resin richer in p-cresol ratio was regarded as an effective matrix of a chemical amplification (CA) pos. resist. THP-protected phenolic compds. with extended backbone structures showed a large dissoln. inhibition. The resist with MWD controlled resin and a THP-protected phenolic compound can achieve high resolution patterns (100-nm contact holes) with high sensitivity (6.0 $\mu\text{C}/\text{cm}^2$).
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST chem amplification pos electron beam resist; dissoln inhibitor design electron beam resist; matrix polymer design electron beam resist
- IT Molecular weight distribution
 (effect of m/p-cresol novolak mol.-weight-distribution and phenolic dissoln. inhibitor structure on electron-beam lithog. resist performance)
- IT Phenolic resins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (novolak; effect of m/p-cresol novolak mol.-weight-distribution and phenolic dissoln. inhibitor structure on electron-beam lithog. resist performance)
- IT Electron beam resists
 (pos.-working, chemical amplification; effect of m/p-cresol novolak mol.-weight-distribution and phenolic dissoln. inhibitor structure on electron-beam lithog. resist performance)
- IT 23358-99-8 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer
 79267-06-4, 2,6-Bis(hydroxymethyl)-p-cresol-m-Cresol-p-cresol-formaldehyde copolymer 211427-63-3 211427-64-4 211427-65-5
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (effect of m/p-cresol novolak mol.-weight-distribution and phenolic dissoln. inhibitor structure on electron-beam lithog. resist performance)
- IT 211427-64-4
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (effect of m/p-cresol novolak mol.-weight-distribution and phenolic dissoln. inhibitor structure on electron-beam lithog. resist performance)
- RN 211427-64-4 HCAPLUS
- CN 2H-Pyran, 2,2',2'',2''',2''''',2''''',2''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13.7.19,13.115,19]octacosae-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)octakis(tetrahydro- (9CI) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Aoi, T	1994	2195	111	Proc SPIE	HCAPLUS
Arai, T	1997	10	625	J Photopolymer Sci T	HCAPLUS
Bogan, L	1991	24	4807	Macromolecules	HCAPLUS
Hattori, T	1996	9	1611	J Photopolymer Sci T	HCAPLUS
Ito, H	1995	2438	53	Proc SPIE	HCAPLUS
Katoh, K	1995	8	121	J Photopolymer Sci T	HCAPLUS
Kihara, N	1997	10	1417	J Photopolymer Sci T	HCAPLUS
Knop, A	1979	1	1	Chemistry and applic	
Sakamizu, T	1993	B11	12812	J Vac Sci & Technol	
Sakamizu, T	1992	31	14288	Jan J Appl Phys	HCAPLUS
Sakamizu, T	1997	3049	1448	Proc SPIE	HCAPLUS
Shiraishi, H	1991	B9	3343	J Vac Sci & Technol	
Shiraishi, H	1994	B12	3895	J Vac Sci & Technol	
Ueda, M	1997	77	1455	Polym Mat Sci Eng	HCAPLUS
Ueno, T	1990	1413	1	Polymers for Microel	
Weinelt, F	1991	56	15527	J Org Chem	HCAPLUS
Zampini, A	1990	1262	1501	Proc SPIE	HCAPLUS

L98 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1997:582349 HCAPLUS [Full-text](#)

DN 127:270381

OREF 127:52641a,52644a

TI A positive-working alkaline developable photoresist based on
benzylether dendrimer and a dissolution inhibitor

AU Haba, Osamu; Haga, Kohji; Ueda, Mitsuru

CS Department of Human Sensing and Functional Sensor engineering, Graduate
School of Engineering, Yamagata University, Yonezawa, 992, Japan

SO Polymeric Materials Science and Engineering (1997), 77, 426-427

CODEN: PMSEDD; ISSN: 0743-0515

PB American Chemical Society

DT Journal

LA English

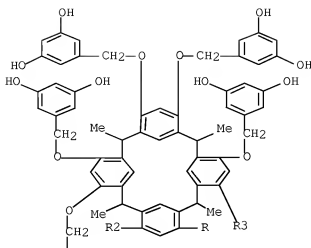
AB Dendrimers are polymers with a new mol. architecture, which is characterized by possessing central poly-functional core, from which arise successive layers of monomer units with a branch occurring at each monomer unit. They are monodisperse materials as well as the calixarene, and their mol. weight reaches ten thousands as well as the novolak resin. Thus the dendrimers are promising material for high sensitive photoresists. We designed a new dendrimer which contains phenol groups in the exterior to be soluble in

aqueous alkaline solution and calix[4]resorcinarene in the interior to increase the number of the phenol group even in the lower generation. We now report new pos.-working alkaline developable photoresist based on this dendrimer.

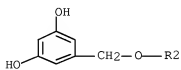
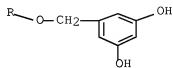
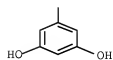
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST pos alk developable photoresist benzylether dendrimer
- IT Photoresists
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT Dendritic polymers
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 84522-08-7, 2,3,4-Tris(1-oxo-2-diazonaphthoquinone-4-sulfonyloxy)benzophenone
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 135710-38-2 177837-80-8 182058-69-1
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 67-64-1, 2-Propanone, uses 75-59-2, Tetramethylammonium hydroxide 109-99-9, THF, uses 111-96-6, Bis(2-methoxyethyl)ether 123-91-1, 1,4-Dioxane, uses
RL: NUU (Other use, unclassified); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 196298-31-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 106-95-6, 3-Bromopropene, reactions 540-69-2, Ammonium formate 558-13-4, Carbon bromide (CBr₄) 584-08-7, Potassium carbonate (K₂CO₃) 603-35-0, Triphenylphosphine, reactions 2150-44-9, Methyl-3,5-dihydroxy-benzoate 7681-82-5, Sodium iodide (NaI), reactions 13965-03-2, Bis(triphenylphosphine)palladium dichloride 16853-85-3 17455-13-9, 1,4,7,10,13,16-Hexaoxacyclooctadecane 53208-22-3, Diazonaphthoquinone 65338-98-9, Calix[4]resorcinarene
RL: RCT (Reactant); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 196298-30-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- IT 196298-30-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
- RN 196298-30-3 HCAPLUS
- CN 1,3-Benzenediol, 5,5',5'',5''',5''''',5''''',5''''',5''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)octakis- (9CI) (CA

INDEX NAME)

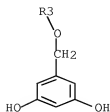
PAGE 1-A



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PAGE 3-A



L98 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1992:140130 HCAPLUS Full-text

DN 116:140130

OREF 116:23503a,23506a

TI Positive-type photoresist composition

IN Kawabe, Yasumasa; Uenishi, Kazuya; Tan, Shiro

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 34 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 445819	A2	19910911	EP 1991-103511	19910307 <--
	EP 445819	A3	19911211		
	EP 445819	B1	20010822		
	R: DE, GB				
	JP 03259149	A	19911119	JP 1990-57658	19900308 <--
	JP 03279958	A	19911211	JP 1990-80028	19900328 <--
	JP 03279959	A	19911211	JP 1990-80029	19900328 <--
PRAI	JP 1990-57658	A	19900308	<--	
	JP 1990-80028	A	19900328	<--	
	JP 1990-80029	A	19900328	<--	

OS MARPAT 116:140130

GI For diagram(s), see printed CA Issue.

AB The title composition comprises a quinonediazide compound, an alkali-soluble resin, and ≥ 1 additive from (1) RXRXR [R = Q; X = lower alkyl; R1 = H, halogen, alkyl, alkoxy, alkenyl, alkoxy carbonyl, alkyloxy, acryl; m = 1-3; n = 2-4], (2) I [R4-R6 = OH, alkyl, alkoxy, halogen; others are same as before], (3) RZ1R [II; R = Q; R1 = H, halogen, carboxyl, alkyl, aryl, aralkyl, alkoxy, acyl, alkoxy carbonyl, alkyloxy, aryloxy, CN, NO2; Z = CR12R13, CO2, COYCO, CO2ZOC2, alkylene; Y = alkylene, an aromatic group; Z = alkylene, oxyalkylene; R12, R13 = alkyl, aryl, acyl, aralkyl, OH etc.; m = 1-3; n = 1-4; m + n = 5], (4) III [R1 = same as in II except carboxyl; R15, R16 = H, alkyl, aryl; g = 3-8; Y = a single bond, OCH2, m = 1-3; m + n = 4], (5) IV [R1 = same as in II, amino, hydrocarbylamino etc.; R19, R20 = H, alkyl; m, n = 1-3], and (6) V [R22 = R; R23 = H, OH, OR25, O2CR22; R1 = same as in II; R25 = R1; m, n = 1-3; m + n = 4; for R22, m + n = 5]. The photoresist composition exhibits excellent sensitivity, resolution, and developability.

IC ICM G03F0007-022

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photoresist pos additive

IT Resists

(photo-, pos.-working, additives for)

IT 500-38-9 1143-72-2 24582-50-1 93933-64-3

99353-03-4 125748-07-4 128197-51-3,

1,1-(5,5'-Diacetyl-2,3,4,2',3',4'-hexahydroxy)diphenylethane

132757-08-5 139545-12-3 139545-13-4 139545-14-5

139545-15-6 139545-16-7 139545-17-8 139545-18-9 139545-19-0

RL: USES (Uses)

(pos. photoresist compns. containing)

IT 500-38-9 93933-64-3 125748-07-4

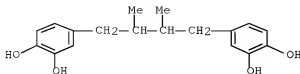
132757-08-5

RL: USES (Uses)

(pos. photoresist compns. containing)

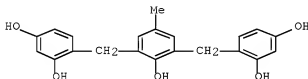
RN 500-38-9 HCAPLUS

CN 1,2-Benzenediol, 4,4'-(2,3-dimethyl-1,4-butanediyl)bis- (CA INDEX NAME)



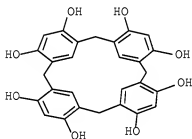
RN 93933-64-3 HCAPLUS

CN 1,3-Benzenediol, 4,4'-[(2-hydroxy-5-methyl-1,3-phenylene)bis(methylene)]bis- (CA INDEX NAME)



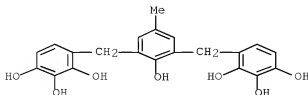
RN 125748-07-4 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



RN 132757-08-5 HCAPLUS

CN 1,2,3-Benzenetriol, 4,4'-[(2-hydroxy-5-methyl-1,3-phenylene)bis(methylene)]bis- (CA INDEX NAME)



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(FILE 'HOME' ENTERED AT 08:29:26 ON 28 OCT 2008)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 08:29:39 ON 28 OCT 2008

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L1      2 S US20070190451/PN OR (US2006-594282# OR WO2005-JP6512 OR JP200
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L2      2 S E3
      E ISHII H/AU
L3      533 S E3-E6
      E ISHII HIRO/AU
L4      37 S E3,E41
      E ISHII NAME/AU
L5      102 S E4
      E HIROTOSHI/AU
      E OWADA/AU
      E OWADA T/AU
L6      11 S E3,E5
      E OWADA NAME/AU
L7      8 S E4
      E TAKANORI/AU
      E SHIBASAKI/AU
      E SHIBASAKI NAME/AU
      E SHIBASAKI Y/AU
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L9      1 S E29
      E YUZI/AU
      E UEDA/AU
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      E UEDA M/AU
L11     585 S E3
      E UEDA MIT/AU
L12     811 S E19
      E UEDA NAME/AU
L13     42 S E4
      E MITSURU/AU
L14     2 S E3
L15     1 S E51
      E IDEMITSU/CO
L16     11970 S E1,E1/CO,PA,CS OR IDEMITSU?/CO,PA,CS
      E E40+ALL
L17     7251 S E2+RT OR E2-E10/PA,CS
L18     1 S L1 AND L2-L17
      SEL RN

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FILE 'REGISTRY' ENTERED AT 08:34:52 ON 28 OCT 2008

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L19     7 S E1-E7
L20     1 S L19 AND NR>=5
      E 11417/RID
L21     17033 S E12
L22     STR
L23     50 S L22
L24     3936 S L22 FUL
      SAV TEMP L24 SINLEE594A/A
      STR L22
L25     50 S L25 CSS SAM SUB=L24
L26     1523 S L25 CSS FUL SUB=L24
L27     SAV TEMP L27 SINLEE594B/A

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L28      1 S L27 AND 638.8.1/RID
L29      423 S L27 AND 46.150.18/RID
L30      401 S L29 NOT PMS/CI
L31      22 S L29 NOT L30
L32      108 S L30 AND 3/ELC.SUB
L33      STR L25
L34      19 S L33 SAM SUB=L27
L35      512 S L33 FUL SUB=L27
          SAV TEMP L35 SINLEE594C/A
L36      189 S L35 AND L29
L37      14 S L36 AND L31
L38      1 S L37 AND BR/ELS
L39      175 S L36 AND L30
L40      47 S L39 AND L32
L41      3 S L40 AND (C88H80O24 OR C88H80O16 OR C128H144O32)
L42      4 S L38,L41
          SAV TEMP L42 SINLEE594D/A
L43      12 S L27 AND OC4/ES
L44      17 S L27 AND OC5/ES

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FILE 'HCAPLUS' ENTERED AT 08:51:15 ON 28 OCT 2008

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L45      8 S L42
L46      6 S L45 AND L1-L18
L47      8 S L45,L46

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FILE 'REGISTRY' ENTERED AT 08:51:37 ON 28 OCT 2008

FILE 'HCAPLUS' ENTERED AT 08:51:58 ON 28 OCT 2008
SEL RN

FILE 'REGISTRY' ENTERED AT 08:52:20 ON 28 OCT 2008

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L48      68 S E1-E68
L49      10 S L48 AND L24 NOT L42
L50      1 S L49 AND C72H96O16

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FILE 'HCAPLUS' ENTERED AT 08:53:12 ON 28 OCT 2008

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L51      2 S L50
L52      1 S L51 AND L1-L18
L53      2 S L51,L52

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FILE 'HCAPLUS' ENTERED AT 10:39:20 ON 28 OCT 2008

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L54      49 S L20
L55      31 S L54 AND PY<=2005 NOT P/DT
L56      11 S L54 AND (PD<=20050401 OR PRD<=20050401 OR AD<=20050401) AND P
L57      24 S L54 AND PY<=2004 NOT P/DT
L58      11 S L54 AND (PD<=20040405 OR PRD<=20040405 OR AD<=20040405) AND P
L59      3 S L1-L18 AND L54
L60      42 S L55-L59
L61      2 S L60 AND L20 (L) REACT?
L62      11 S L60 AND L20 (L) RACT+NT/RL
L63      4 S L60 AND L20/DP
L64      15 S L59,L61-L63
L65      3 S L64 AND PHOTORESIST
L66      2 S L64 AND ?LUMINES?
L67      6 S L64 AND L59,L65,L66
L68      5 S L60 AND PHOTORESIST
L69      8 S L67,L68
          SEL RN

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FILE 'REGISTRY' ENTERED AT 10:43:57 ON 28 OCT 2008

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L70      261 S E69-E329
L71      5 S L70 AND 638.8.1/RID
L72      0 S L70 AND OC4/ES
L73      4 S L70 AND OC5/ES
L74      137 S L70 AND 46.150.18/RID
L75      93 S L74 NOT L21
L76      47 S L75 NOT N/ELS
L77      32 S L76 AND 3/ELC.SUB
L78      30 S L77 NOT C5-C6/ES
L79      28 S L78 NOT OC5-C6/ES
L80      26 S L79 NOT PMS/CI
L81      13 S L80 AND (C7H8O2 OR C6H6O2 OR C20H18O3 OR C54H60O9 OR C18H22O4

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FILE 'HCAPLUS' ENTERED AT 12:46:09 ON 28 OCT 2008

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L82      4 S L81 AND L69
L83      2 S L71 AND L69
L84      4 S L82,L83
L85      3 S L69 AND (L81 OR L71) (L)REACT?
L86      3 S L69 AND (L81 OR L71) (L)RACT+NT/RL
L87      4 S L84-L86
L88      4 S L69 NOT L87
L89      2 S L88 AND PHOTORESIST?
L90      6 S L87,L89
L91      14 S L47,L53,L90
L92      12 S L91 AND (PHOTORESIST? OR PHOTO RESIST OR RESIST)
          E PHOTORESIST/CT
L93      5 S E6-E8 AND L91
          E E6+ALL
L94      9 S L91 AND E7+OLD,NT
L95      11 S L91 AND E6+OLD,NT
L96      12 S L92-L95
L97      2 S L91 NOT L96
L98      14 S L96,L97

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